



SEDIMENTARY ROCKS

CARBONIFEROUS

Westphalian : Coal Measures



Undivided : Confined to a small area at Port Seton, where there is a cyclic sequence of sandstones, siltstones, mudstones, and coals and seatclays about 47m thick. Locally the strata are reddened. The mudstones overlying at least one of the coal seams contain a fauna of non-marine bivalves

Namurian : Millstone Grit Series



Passage Group : A sequence about 120m thick of sandstones, pebbly in places, with siltstones, mudstones, seatclays and a few thin coal seams; thin conglomerates are present in places and at some localities the strata are reddened. Two Marine shell-beds occur. The lower part is Namurian but the upper part may be Westphalian



Upper Limestone Group : Cyclic sequence of sandstones, siltstones, mudstones and marine limestones, with seatclays and several thin coals, totalling about 145m



Limestone Coal Group : Cyclic sequence of sandstones, siltstones, mudstones, coals and seatclays, with two marine-bands and several *Lingula* bands, totalling about 160m. Several of the coals have been extensively worked, including undersea workings west and north-west of Cockenzie and Port Seton. A blackband ironstone was formerly mined in the Macmerry-Penston vicinity, about 3km south east of Tranent

Dinantian : Carboniferous Limestone Series



Lower Limestone Group : Cyclic sequence of sandstones, siltstones, mudstones and marine limestones, about 80m thick. Several thin coals are present, at least one of which has been worked locally. Three persistent limestones are present in the lower part of the Group, and two of these, the Skateraw and the Upper Longcraig limestones, have been fairly extensively worked; the succession in the upper part of the Group is not known in detail



Calciferous Sandstone Measures : About 780m of strata, composed of an upper, predominantly sandy subdivision, and a lower sandstone, shale and cementstone subdivision, separated by the Garleton Hills Volcanic Rocks. The upper subdivision is relatively thin in the area east of Longniddry, and thickens somewhat to the north and more markedly to the south. A persistent limestone is present in the upper part, and several marine shell-beds occur lower in the sequence. A number of coal seams is also present, one or two of which have been worked locally. The Garleton Hills Volcanic Rocks, composed of lavas, tuffs and agglomerates, are about 520m thick in the North Berwick-Garleton Hills area, and thin southwards

DEVONO - CARBONIFEROUS



Upper Old Red Sandstone : Red, purple, brown and green sandstones, with beds of siltstone and mudstone; bands of cornstone in the upper part, and pebbly and conglomeratic bands in the lower part



Conglomerate, mainly greywacke pebbles and cobbles

DEVONIAN

Lower



Conglomerate, mainly greywacke pebbles and cobbles with a few igneous pebbles

SILURIAN

Llandovery



Greywacke, siltstone, shale and mudstone

ORDOVICIAN

Caradoc - Ashgill



Greywacke with conglomeratic bands in places, siltstone, shale and mudstone, with beds of chert and graptolite shale; a thin flow of felsic acid lava occurs in the Linn Dean Water east-north-east of Soutra Hill, a thin silicified tuff crops out north-east of Kelphepe Hill, and the chert beds are associated with thin tuffaceous bands

IGNEOUS ROCKS

EXTRUSIVE

Carboniferous



T Trachyte : Pale buff and pink fine-grained rock composed of orthoclase with some augite and iron ore. May have phenocrysts of feldspar
N Quartz-banakitite (quartz-bearing trachyandesite) : Greenish-grey fine-grained rock containing phenocrysts of plagioclase, potash feldspar and olivine in a matrix of potash feldspar, augite, iron ore and some quartz



HW Leucite - Kulaite (hornblende-trachybasalt) : fine-grained porphyritic rock composed of oligoclase, subordinate orthoclase, hornblende, augite, iron ore, olivine and altered leucite
WM Mugearite : Fine-grained rock, composed of oligoclase, with some alkali feldspar, olivine, augite, biotite and iron ore
FWM : Mugearite with phenocrysts of feldspar



Basalt : Dark coloured fine-grained rock, composed of calcic plagioclase, pyroxene, olivine and iron ore
BM Basalt of Markle type, containing many large phenocrysts of plagioclase and some olivine
BW Basalt of Dunsapie type, containing many large phenocrysts of plagioclase, olivine and augite
BW Basalt of Craiglockhart type, containing many large phenocrysts of olivine and augite

Transitional types are shown by combination of symbols eg. **BM/BW**



Tuff : Consolidated volcanic ash
Trachytic tuff : Consolidated volcanic ash with fragments of trachyte



Basaltic tuff : Consolidated volcanic ash with fragments of basalt

Ordovician



Felsic acid lava (unclassified) : Red, purple and grey



Tuff (felsic acid) : Consolidated volcanic ash, reddish-brown and purple-grey

INTRUSIVE



Agglomerate : Consolidated volcanic ash infilling volcanic necks and vents, commonly with large blocks



Dark coloured rocks, mainly **basalt** or **dolerite**, not classed precisely, generally altered

? Tertiary



Tholeiitic olivine-basalt : Dark coloured fine-grained rock containing calcic plagioclase, augite, olivine, iron ore and intersertal glass

Late Carboniferous - ? Permian



Quartz-dolerite : Dark coloured medium-grained rock composed of calcic plagioclase, augite, quartz (or micropegmatite) and iron ore. Tholeiitic varieties with intersertal glass occur

Carboniferous



Trachyte
OP Phonolite and phonolitic trachyte : Trachytic rock containing sodic plagioclase and alkali feldspar, with augite, olivine, iron ore, nepheline and analcime



Trachybasalt : Pale grey fine-grained rock, containing phenocrysts of potash feldspar, plagioclase and olivine, in a basaltic matrix



Dolerite, basalt or tholeiite



Olivine-basalt or dolerite : Fine-to medium-grained dark rocks composed of calcic plagioclase, pyroxene, olivine and iron ore; many are highly altered
D0 Basalt of Dunsapie type
D1 Basalt of Dalmeny type, containing many small phenocrysts of olivine
D2 Basalt of Hillhouse type
D3 Teschenite : Contains less olivine and normally with much analcime
D4 Essexite : Fine-grained rock, containing in addition orthoclase and analcime



Monchiquite, allied Basalts and Basanite : Dark coloured, fine-grained basaltic rocks
CM Monchiquite : Pyroxene-rich basaltic rock, characterised by analcime and sparse feldspar
C0 Basanite : Basaltic rock containing much analcime in addition to feldspar

Lower Devonian



Felsic or semi-felsic minor intrusion : Highly altered, pale coloured, fine-to medium-grained feldspathic rocks



Felsite : Pale, commonly pink, fine-grained compact rock, composed of alkali feldspar, quartz and sparse iron ore
qF Quartz-porphry : Phenocrysts of quartz, biotite and feldspar in fine-grained quartz-feldspathic groundmass
F1 Acid porphyrite : Slightly darker coloured with phenocrysts of acid plagioclase in groundmass of alkali and sodic feldspar, sparse ferromagnesian minerals and quartz, usually very altered
F2 Microgranodiorite minor intrusion : Pale coloured, medium-grained rock containing plagioclase, orthoclase, quartz and biotite. Phenocrysts of plagioclase and biotite occur



Lamprophyre : Red or grey fine-grained rock containing many well-shaped crystals of biotite or hornblende, and, in some instances pyroxene, with feldspar and iron ore



Porphyrite : Compact fine-grained reddish or brown rock containing phenocrysts of intermediate plagioclase (often albitised), hornblende, pyroxene or biotite in a matrix of these minerals, and some iron ore. Usually altered
PM Quartz-microdiorite : Medium-grained rock, containing altered plagioclase, hornblende and possibly pyroxene, with iron ore and some quartz and alkali feldspar
PP Plagiophyre : Highly altered sparsely porphyritic rock



Granitic rocks (unclassified) : Pale coloured coarse-grained rock, containing plagioclase orthoclase, biotite and quartz. Some are sericitised



Horizontal strata
Inclined strata, dip in degrees
Inclined strata underground, dip in degrees
Vertical strata



Overtuned strata, dip in degrees
Inclined
Axial trace of syncline
Geological boundary
Fault at surface, crossmark on downthrow side



Coal outcrop
Metaliferous vein Ba Baryte Fe Iron
Mussel band
Lingula band
Marine band
Limestone or cementstone
Base of lava flow
Margin of metamorphic aureole